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CONTENTS

Editorial

Greetings to the Ontario-Quebec Section! 215*C*

Technical Papers

Corrosion Inhibitors and Polarographic Maxima. *Harry C. Gatos* 433

Corrosion Properties of Titanium in Marine Environments. *H. B. Bomberger, P. J. Cambourelis, and G. E. Hutchinson* . 442

Jet Impingement Tests. *P. T. Gilbert and F. L. LaQue* 448

Effect of Rapid Cathode Rotation and Magnetic Fields on Crystal Orientation in Electrodeposited Metals. *Ling Yang* . 456

Role of Sulfur in the Luminescence and Coloration of Some Aluminosilicates. *Russell D. Kirk* 461

Preparation and Properties of Lead Telluride. *Edward L. Brady* 466

Crystal Structure and Thermodynamic Studies on the Zirconium-Hydrogen Alloys. *Earl A. Gulbransen and Kenneth F. Andrew* 474

Determination of Barrier Layer Thickness of Anodic Oxide Coatings. *M. S. Hunter and P. Fowle* 481

Technical Review

The Utility of Thermodynamic Interpretation of Polarization Curves. *Marcel Pourbaix* 217*C*

Feature Section

Research and Development in the Field of Carbides, Nitrides, Silicides, and Borides for Aircraft Propulsion; A Status Report. *Lloyd D. Richardson, Sr.* 222*C*

Current Affairs

Candidates for Society Offices—1955–1956 ..... 225*C*

Program for the Boston Meeting 227*C*

Section News 232*C*

Personals 232*C*

Book Reviews 233*C*

Letters to the Editor 234*C*

Recent Patents 235*C*

Literature from Industry 236*C*

New Products 237*C*

Employment Situation 238*C*

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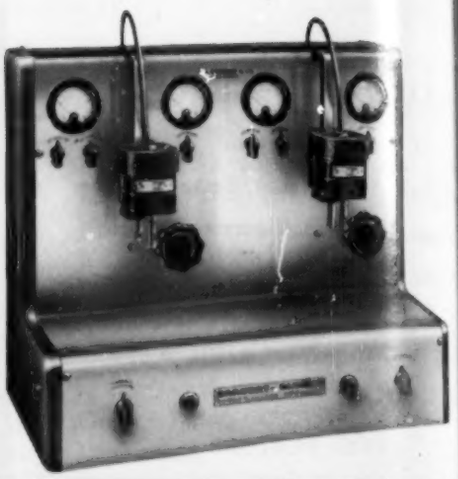

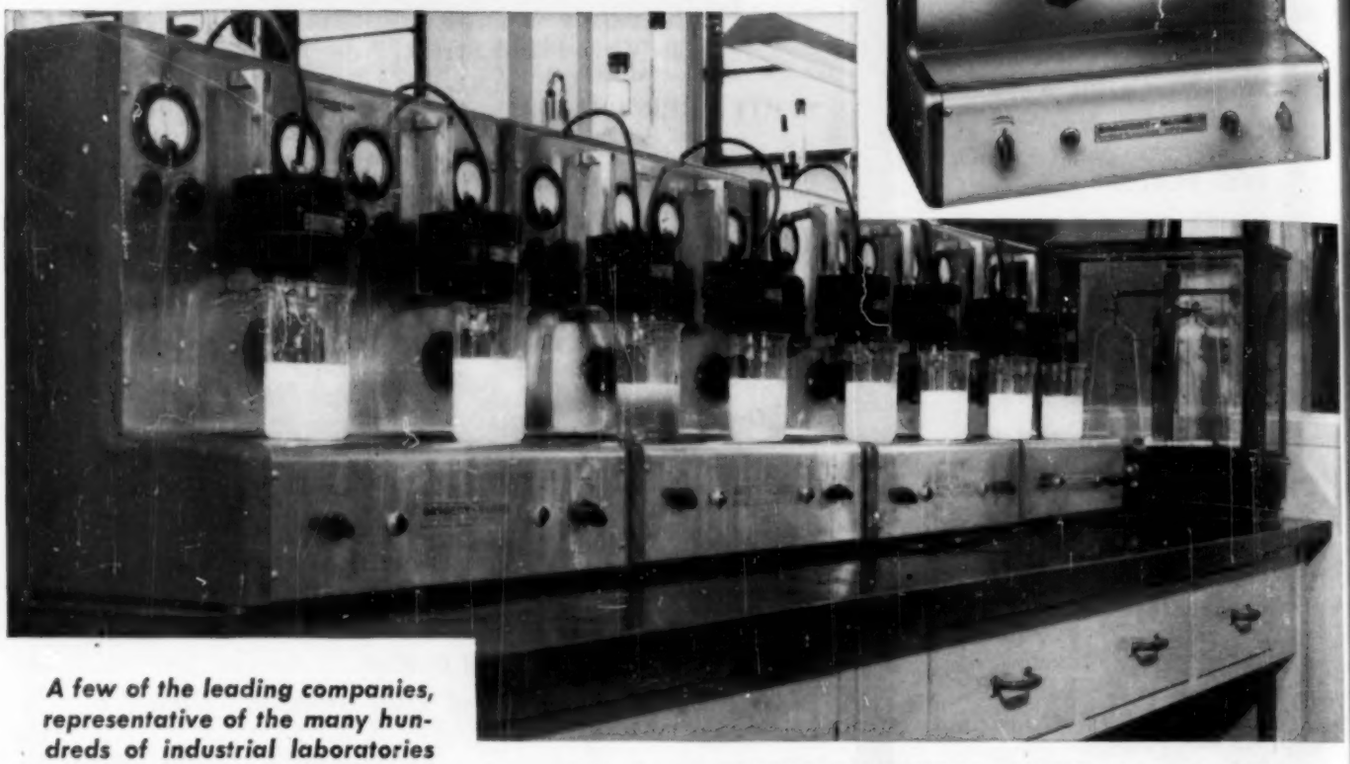

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Editorial

Greetings to the Ontario-Quebec Section!

ESTABLISHMENT of the Ontario-Quebec Section of The Electrochemical Society with headquarters at Montreal is a significant event—a development that is in keeping with the times. Canada, with less than ten per cent of the population of the United States, has become the sixth ranking industrial power, the third greatest trading nation, and has been for a decade the leading exporter of nonferrous metals. Possessing half of the twenty greatest hydroelectric generating plants on the North American continent, Canada's electrochemical and electrometallurgical industries have expanded spectacularly in recent years. The production of aluminum, for example, has grown fivefold in fifteen years. The world's largest aluminum smelter at Arvida may be exceeded in capacity by the plant under construction at Kitimat. Tremendous natural resources and the enterprise of her citizens have given rise to a rapid industrialization, during and since the end of the war, that is truly impressive. Electrochemistry has contributed in great measure to this growth and may be expected in the future to play an even greater part in the development of the country.

Canadians from the earliest days have participated in the development of industrial electrochemistry. Likewise they always have been prominent in the affairs of The Electrochemical Society and the gracious hosts to some of its most successful meetings. Indeed, Canadians have been a leading factor in the development of the Society's international character. With the organization of the new Section Canadians will feel more than ever a part of the Society. There can be no doubt that through meetings and publications the Society can be a stimulating influence in the continuing development of Canadian chemistry. We welcome the opportunity as we welcome the new group. We predict with confidence that within a decade the Ontario-Quebec Section will become the largest and most active regional organization!

—RMB

The pole that need not be climbed

Fastening wires with new tool.

Since telephony began, there has been just one way to install telephone wires on poles: have a trained man climb up and fasten them there. Now Bell Laboratories engineers have developed a special pole line for rural areas. The entire line can be erected without climbing a pole.

The whole job is done from the ground. Light-weight poles are quickly and easily erected. Newly created tools enable men to fasten wires to crossarms 10 to 25 feet over their heads.

This inexpensive line promises more service in sparsely populated places. From original design to testing, it exemplifies a Bell Telephone Laboratories team operation in widening telephone service and keeping costs down.

Key to the new "climbless" pole is this insulator. Ground crews use long-handled tools to place the wire in position and then lock it fast.

Bell Telephone Laboratories

IMPROVING TELEPHONE SERVICE FOR AMERICA PROVIDES CAREERS FOR CREATIVE MEN IN SCIENTIFIC AND TECHNICAL FIELDS

National Research Corp., Cambridge, Mass.

3:40 P.M.—"Vacuum and Pressure Melting of Iron-Base Alloys" by E. R. Morgan and Donald Frey, Ford Motor Co., Dearborn, Mich.

4:05 P.M.—"Vacuum Induction-Melted Zirconium and Zirconium Alloys" by H. A. Saller, R. F. Dickerson, and E. L. Foster, Jr., Battelle Memorial Institute, Columbus, Ohio.

4:30 P.M.—"An Evaluation of Finely Divided Zirconium Powder" by Winston Bachmann and Richard H. Gale, Lamp Div., Chemical Products Works, General Electric Co., Cleveland, Ohio.

Electrothermics and Metallurgy (Cont'd)

Thursday, October 7, 1954
with Arthur C. Haskell, Jr., presiding

9:00 A.M.—"Design and Operation of an Induction and a Resistance Furnace for High Vacuum-High Temperature Applications" by R. F. Domagala and D. J. McPherson, Nonferrous Metals Research, Armour Research Foundation, Chicago, Ill.

9:25 A.M.—"A New Method for the Evaluation of High Vacuum Furnaces and Heat Treating Atmospheres" by W. R. McMillan and Earl A. Gulbransen, Research Labs., Westinghouse Electric Corp., East Pittsburgh, Pa.

9:50 A.M.—"Theory and Performance Characteristics of a Kinney Mechanical Booster Vacuum Pump" by C. M. Van Atta and R. L. Sylvester, Kinney Manufacturing Div., New York Air Brake Co., Boston, Mass.

10:15 A.M.—"Rotary Gas Ballast Pumps" by William Frye, National Research Corp., Cambridge, Mass.

10:40 A.M.—"Economics of Vacuum Melting" by G. J. Crites, F. J. Stokes Machine Co., Philadelphia, Pa.

11:05 A.M.—"Deoxidation of Vacuum Melted M 252" by W. F. Moore and R. K. McKechnie, Research Labs., General Electric Co., Schenectady, N. Y.

11:30 A.M.—"Hydrogen Deoxidation of Vacuum-Melted High-Temperature Alloys" by R. L. Hadley and L. M. Bianchi, Research Labs., General Electric Co., Schenectady, N. Y.

Electrothermics and Metallurgy (cont'd)
with Ivor E. Campbell presiding

2:00 P.M.—"Application of Vacuum Technology to Metallurgical Processes" by Robert G. Ulrech, Consolidated Vacuum Corp., Rochester, N. Y.

2:25 P.M.—"Vacuum Heat-Treating Techniques" by Richard L. Hoff and A. M. Bounds, Superior Tube Co., Norristown, Pa.

2:50 P.M.—"Solid State Purification of Molybdenum by Induction Heating" by J. E. Drennan, W. W. Kleinschmidt, and F. C. Todd, Electronics Physics Div., Battelle Memorial Institute, Columbus, Ohio.

3:15 P.M.—"Vacuum Degassing of Titanium" by C. B. Griffith and M. W. Mallett, Battelle Memorial Institute, Columbus, Ohio.

3:40 P.M.—"Vapor Pressures of Metals and Alloys" by Rudolph Speiser and J. W. Spretnak, Dept. of Metallurgy, Ohio State University, Columbus, Ohio.

4:15 P.M.—"Vapor Pressure Measurements in the Ca-Al System" by H. Hancock and L. M. Pidgeon, Dept. of Metallurgical Engineering, University of Toronto, Toronto, Ont.

4:40 P.M.—"Removal of Volatile Constituents from Nonferrous Alloys by Vacuum Distillation" by M. J. Spendlove, Secondary Metals Recovery Section, U. S. Bureau of Mines, College Park, Md.

* * *

Extended Abstract Booklet of Papers on "Electrode Processes in Batteries"

A joint symposium of the Theoretical and Battery Divisions on the subject "Electrode Processes in Batteries" will be held in Boston at the October Meeting of the Society. Thirty-seven papers are planned and a booklet of about 100 pages will be available presenting 1000-word abstracts of each of the review and contributed papers scheduled for presentation.

This booklet should be available early in September. Copies will be available for sale to Society members. Any member not belonging to either the Theoretical or Battery Division wishing to purchase copies should send his check for $2.00 per copy to N. C. Cahoon, 4660 West 210th Street, Fairview Park, Cleveland 26, Ohio. Booklets will be mailed promptly after they are received from the printer.

New Rate Schedule for ECS Publications

As of August 1, 1954, a new rate schedule for Society publications will be in effect. Two rate schedules have been drawn up, one applicable to members, one to nonmembers including subscribers. This is another manifestation of the benefits of membership in the Society.

Until further notice, single copies of the JOURNAL will be $1.25 to members and $1.50 to nonmembers. Members will be billed $12.00 for back volumes of the TRANSACTIONS and bound JOURNALS, nonmembers $18.00.

Prepublication prices on bound volumes of the JOURNAL are available to members and nonmembers. Postpublication prices of volumes to members will be double prepublication prices, to nonmembers treble prepublication prices.

Prices of other Society publications, such as indexes, directories, monographs, etc., will be listed in the JOURNAL before date of issue.

Palladium Medal Award for 1955

The third Palladium Medal will be awarded at the Fall Meeting of the Society to be held at Pittsburgh, Pa., October 9–13, 1955. The medal was established in 1951 under the auspices of the Corrosion Division for distinguished contributions to fundamental knowledge of theoretical electrochemistry and of corrosion processes. It is awarded biennially to a candidate who is selected by a committee appointed in turn by the Board of Directors of the Society. The Committee this year consists of R. M. Burns, J. C. Warner, W. D. Robertson, and H. H. Uhlig, Chairman.

The Committee requests Sections, Divisions, and members of the Society to send in suggestions for candidates for 1955, accompanied by supporting information, to H. H. Uhlig, Room 8-202, Massachusetts Institute of Technology, Cambridge 39, Mass. Candidates may be citizens of any country and need not be members of the Society. Previous medallists are Carl Wagner, Massachusetts Institute of Technology, and N. H. Furman, Princeton University.

Positions Available at Naval Test Center

A number of vacancies for engineers, physicists, and scientists in the elec-

tronics and related fields exist in the Naval Air Missile Test Center, Point Mugu, Calif.

Interested parties are requested to write for further particulars to: R. A. Riebow, Employment Superintendent, U. S. Naval Air Station, U. S. Naval Air Missile Test Center, Point Mugu, Port Hueneme, Calif.

Volumes Wanted

Society Headquarters needs copies of Vol. 92 (1947), 93 (1948), and 95 (1949) of the TRANSACTIONS.

Will anyone who has a copy he no longer needs please so inform the Managing Editor, Journal of The Electrochemical Society, 216 West 102 Street, New York 25, N. Y.

SECTION NEWS

Chicago Section

The Chicago Section was fortunate in having the Honorable Robert E. Merriam, Alderman, 5th Ward,

ROBERT E. MERRIAM

Chicago, as speaker at its meeting held Friday, April 2, in the Chicago Engineers Club. A fairly good-sized turnout of local electrochemists, others interested in the subject being discussed, and two local newspaper reporters were present.

Because of a rather crowded schedule, it was necessary for the Alderman to address the group an hour earlier than planned. His talk covered general city problems and the alliance between crime and politics in Chicago.

He stated that the problems of a city were many and that they were often compounded by each other rather than simplified. He continued by explaining that many of these problems were due to (*a*) rapid city growth and (*b*) the cosmopolitan nature of cities. As an example of a typical present-day city problem, he cited the traffic tie-up on Chicago's Lake Shore Outer Drive. The average car on the Drive at present carries 1.2 persons. Alderman Merriam jestingly questioned what would happen to Outer Drive traffic should this average drop to less than 1. Would there perhaps be fewer accidents? He continued by stating that he thought the traffic problem in Chicago could be effectively solved only by going partially underground.

In discussing the alliance between crime and politics, he stressed that it was important for each citizen to take an active part in local government. The citizens have in their hands the power, authority, and possibility for solving the existing problems. It was the alderman's belief that these problems would be solved if the citizens exercised their voting prerogative.

Several questions were raised from the floor, which the alderman answered. The meeting was concluded by the Chairman, Howard Francis, who thanked the speaker for taking time to appear. Those present rose to give the speaker a standing vote of thanks.

Because of a recent change in location, A. H. Roebuck is no longer Secretary of the Chicago Section. The new Secretary is:

Joseph E. Draley, Argonne National Laboratory, P.O. Box 299, Lemont, Ill.

A. H. ROEBUCK, *Secretary*

PERSONALS

A. H. ROEBUCK has left the Argonne National Laboratory, Chicago, for a position with the Production Research Division of the Continental Oil Company, Ponca City, Okla. Dr. Roebuck's work at Continental is similar to that with which he was concerned at Argonne. His activities include corrosion problems, surface reactions, etc.

GUSTAV EGLOFF, director of research, Universal Oil Products Co., Chicago, has been elected second vice-president of the Midwestern Air Pollution Prevention Association, an organization set up in 1951 to help control Chicago's air pollution.

HOWARD A. ACHESON recently was elected President of Gredag, Inc., Niagara Falls, N. Y., at the company's annual meeting of stockholders. He was also among those chosen as Directors. Gredag, Inc., a subsidiary of Acheson Industries, Inc., was founded in 1910 by the late Edward Goodrich Acheson.

F. L. LAQUE recently became Vice-President and Manager of the Development and Research Division of the International Nickel Co., Inc., New

F. L. LAQUE

York City. Associated with the company since 1927 he had been head of the Corrosion Engineering Section since 1945.

Well known to corrosion workers, and the author of many papers in the field, he has long been active in the Corrosion Division of The Electrochemical Society and the National Association of Corrosion Engineers. A member of the Society since 1942, Mr. LaQue served as its Business Manager for several years. Most recently he was General Chairman of the 1953 meeting in Wrightsville Beach, N. C.

In 1949 he was the recipient of the F. N. Speller Award in Corrosion Engineering of the National Association of Corrosion Engineers, of which he is a past president.

J. P. CASEY, JR., formerly with Crane Co., Chicago, has transferred to Cramet Inc., Chattanooga, Tenn., a subsidiary of Crane Co., in the capacity of Staff Assistant. The company is engaged in the production of titanium sponge.

RALPH A. SCHAEFER, Vice-President of the Clevite-Brush Development Co., a subsidiary of the Cleveland Graphite Bronze Co., was elected President of the American Electroplaters' Society at the final business meeting of the 41st Annual Convention at the New York Hotel Statler.

SAMUEL HEIMAN was elected second vice-president of the American Elec-

troplaters' Society at the 41st Annual Convention of the society at the Hotel Statler, New York. Dr. Heiman is chief chemist and technical director of the Philadelphia Rustproof Co., Philadelphia, Pa.

Robert B. Wittenberg has been elected a vice-president of Great Lakes Carbon Corp., New York City, and appointed general manager of its Electrode Division. In his new post, Mr. Wittenberg will direct all the activities of the Electrode Division which produces electrodes for the electrometallurgical industry and anodes for the electrochemical industry. He has been general manager of the Chemical Division of General Tire & Rubber Co., Akron, since 1951.

NEWS ITEMS

German Periodical Available

The first issues of the Frankfurt edition of "Zeitschrift für Physikalische Chemie, Neue Folge" are now available. The new series is the lawful continuation of "Zeitschrift für Physikalische Chemie" (appearing since 1887) now being published by Akademische Verlagsgesellschaft m.b.H., Frankfurt am Main, by arrangement with the original owners and in cooperation with Professors K. F. Bonhoeffer, Th. Förster, W. Jost, Georg-Maria Schwab, former editors of the prior series. Every effort will be made to restore this periodical to its previous international reputation. An international Advisory Board of leading physico-chemists is now being formed.

Contents are not identical with those of a periodical released under the same name in Leipzig, Soviet Zone of Germany.

During 1954 two volumes will be published. Orders for and inquiries about these volumes, each priced at $8.35, should be addressed to Akademische Verlagsgesellschaft, m.b.H., Helbeinstrasse 25–27, Frankfurt am Main, Germany.

Description of "Teflon" Available

A complete description of "Teflon" tetrafluoroethylene fiber—a new fiber so resistant to heat and chemicals that laboratory workers call it "dragon fur"—has been released by E. I. du Pont de Nemours and Company. In a booklet prepared for distribution at the Basic Materials for Industry Exposition in Chicago in May, the company's Textile Fibers Department said "the unique chemical and physical properties of this fiber at elevated temperatures and pressures make possible operational performance undreamed of before."

Development of a "Teflon" fiber expands the uses of this material which is now produced by du Pont in such forms as plastic molding powder, certain finishes, and Teflon impregnated glass fabrics and tapes. Teflon has a high mechanical strength over a wide range of temperatures. It retains useful strength to over 400°F; its impact strength is high even at −90°F. The fiber has unparalleled resistance to chemical attack; it resists action by such chemicals as sulfuric, nitric, and hydrochloric acids. Aqua regia does not affect Teflon. In the range of chemicals, Teflon is affected only by fluorine gas and chlorine trifluoride at high temperature and pressure, and by molten-alkali metals. It has good electrical properties, is nonflammable, but melts with decomposition. Its moisture absorption is zero, and it is the most water-repellent fiber known. Its dyeability is poor, but it has a tensile strength of 42,700 lb/in.^{2}

Davison-Grace Merger Announced

Merger of The Davison Chemical Corporation with W. R. Grace & Co. was announced recently.

Davison will operate as Davison Chemical Company Division of W. R. Grace & Co., and headquarters of the division will be maintained in Baltimore.

The present Board of Directors of Davison will continue as members of an advisory board of the Davison Division, and present officers of the company will continue in corresponding posts of the new division of Grace.

It is expected that sometime after the merger the Grace management will recommend that the Board of Directors of W. R. Grace & Co. be increased and that the chairman of the board of Davison and the president of Davison will be invited to become members of such enlarged Board of Directors.

Stokes Machine Co. Expands

Rapid growth of the markets for its equipment—including high vacuum equipment for processing organic chemicals; vacuum furnaces for refining uranium, titanium, and high temperature alloys; vacuum metallizing equipment for television picture tubes, selenium rectifiers, and plating automobile trim and hardware; automatic loading equipment for ammunition; and extruders for plastic pipe—has led to the second large-scale plant expansion within four years for the F. J. Stokes Machine Company, Philadelphia.

Ground was broken early in July for a 50,000-sq.-ft. addition to the present Stokes plant, in Northeast Philadelphia, launching a $1 million expansion program that will enlarge its production facilities by another 40%.

Development of Detergents

J. C. Harris, director of application research for the Merchandising Division of Monsanto Chemical Company, has written a technical book entitled "Detergency Evaluation and Testing" published by Interscience Publishers, Inc., New York. It outlines and describes screening tests, cotton and wool washing, wash test methods, washing procedures for other fibers, etc.

BOOK REVIEWS

Materials and Processes by James F. Young. Published by John Wiley & Sons, Inc., New York, and Chapman & Hall, Ltd., London, 1954. 1074 pages, $8.50.

This book was originally written for use in the General Electric Company's "in plant training." To quote the preface to the first edition: "This book has been written to present in one volume a broad study of the materials and manufacturing processes employed by the design engineer, and thus to provide information directly useful in the selection of materials for design." The book succeeds admirably in its purpose.

The first part of the book is concerned with materials and again might be subdivided into two sections, one on metals and the other on nonmetals. Both of these sections start off with an explanation of the structure of the materials and a discussion of their physical properties. Later in each section there is a discussion of the kinds of materials available and the particular properties and applications of each kind. The second part of the book is concerned with processes. This section is devoted primarily to the processing of metals since the processing of the nonmetals in general is covered in the particular chapters discussing each material. The coverage of the processes for working of metallic materials is

quite complete, starting with casting processes and powder metallurgy in which the parts are formed directly from the raw materials and carries through both hot and cold working, welding, and machining.

The book is unusually complete and concise in its treatment of this broad subject. While it was intended originally as a classroom textbook, it is so written that it should also prove to be a very useful reference book. Although Mr. Young is credited with authorship of the book, many of the chapters have been written by other employees or former employees of the General Electric Company who are experts in the particular field. In spite of this multiple authorship, the book has been so well edited that there is very little repetition of subject matter.

The only fault which one can find against the book is one which is inherent in any book which tries to cover such a large subject in one volume. Some of the materials and processes will not be covered completely enough to suit some readers. However, each chapter contains a very complete bibliography of the subject and further reading based on this bibliography should answer any questions. The second fault again inherent in any such volume is that general statements are made without pointing out some of the exceptions to these statements. However, these faults are minor when compared to the excellence of this volume.

I. V. Williams

Copper, edited by Allison Butts. American Chemical Society Monograph Series, No. 122. Published by Reinhold Publishing Corporation, New York, 1954. 936 pages, $20.00.

In this most comprehensive book on copper yet written, nearly every phase of the chemistry and metallurgy of the element has been treated. The book contains 46 big chapters in which important fundamental principles are presented; latest practices in the copper industry are discussed; and applications to metallurgy, chemistry, biology, and agronomy are presented.

A book which attempts to be all inclusive of a single subject such as this must of necessity come short of the attempt. This will happen if for no other reason than that the sheer labor of compilation will require such time as will produce further work in the field. As such works go and within the limitations of human frailties, this is a heroic attempt.

The authors of the various chapters are all specialists in their respective fields, and for the most part have written in a most informative, concise, readable, and pleasing style. Appended to most of the chapters are good bibliographies. For a book written by more than 50 authors, the degree of integration of material is quite remarkable. Professor Allison Butts, the Editor-in-Chief of the volume, is to be congratulated for this accomplishment as well as for selecting and obtaining so distinguished and qualified a group of chapter authors.

This reviewer, with some hesitation, raises the question as to how much of this material in a single volume is required by an individual purchaser. He is reminded of the criticism of the novel "Moby Dick" that, "It contains more information about whaling than I want to know." It is arguable that the student, the teacher, the research or process metallurgist, the producer or the consumer each would prefer to have available a reference work dealing in more detail with his own field of interest than this type of exhaustive survey of all aspects of a single metal.

The publisher of such a book will undoubtedly have had this in mind and we shall be able to judge the demand which this type of book will satisfy by the number of similar kind which succeed it.

E. E. Schumacher

Ferrous Process Metallurgy by John L. Bray. Published by John Wiley & Sons, Inc., New York, 1954. 414 pages, $6.50.

This new book by the late Professor Bray of Purdue University entitled "Ferrous Process Metallurgy" is a good one. It contains all of the still pertinent material previously found in Professor Bray's extensively used college text "Ferrous Production Metallurgy" and, in addition, has good sections dealing with taconite beneficiation, radioactive tracers, and continuous casting. In the present work less space is given to historical matter, and discussions on minor processing procedures are cut to a minimum. Much more emphasis is given to the physical chemistry of iron and steelmaking processes, which is all to the good and in line with current teaching needs.

The book follows a straight-line procedure from the raw materials through the successive unit processes of steelmaking, each the subject of a major chapter. Each chapter treats its process in terms of its history, purpose, fundamental principles, equipment, control, by-products, and practical operational aspects.

It is somewhat regrettable that the making of the book was not more carefully supervised by the publisher, the opposing type lines on either side of each page being apparently randomly aligned. As a college textbook on the reduction and refining of ferrous metals this work can be recommended.

E. E. Schumacher

LETTERS TO THE EDITOR

"A Phlogiston Theory of Corrosion"

Dear Sir:

I read with considerable interest "A Phlogiston Theory of Corrosion"[1] and am more than gratified to find that others are working on this problem. I have been pursuing the elusive "notsigolhp" for the past ten years and have succeeded in isolating about 500 grams of it in an alcohol solution. This I have bubbling in a crock in my cellar and it is available for all skeptics to taste. Even the most chronic doubters will then agree to its passivating characteristics.

Dr. Willbanks neglects to mention side reactions, evidently believing them to be insignificant. These reactions may be inhibited by dissolving one tablet of sodium acetyl salicylate in a glass of water and mixing with the "notsigolhp."

Perhaps the most promising use for notsigolhp is not to be found in alloying for corrosion prevention, but in the reduction process for the manufacture of metals. Can you imagine one's joy, after having sown notsigolhp on one's lawn, in merely using a spade to unearth beautiful aluminum ingots?

Thanks for the chuckles.

Frank McGeary
111 Highland St.
Cheswick, Pa.

[1] Otto L. Willbanks, *This Journal*, **101**, 76C (1954).

Dear Sir:

This is a note to congratulate you on your editorial in the July issue of the Journal.

You have put into words what I am sure most of us in the Society feel.

With best wishes.

Leon Robbin
P. R. Mallory & Co., Inc.
New York, N. Y.

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RECENT PATENTS

Selected by Fred W. Dodson, Chairman of the Patent Committee, from the Official Gazette.

June 1, 1954

Churchill, J. W., and Schaeffer, B. B., 2,680,092, Photochemical Production of Chloral

Shaw, H., Thompson, A., and Wood, P. A., 2,680,093, Anode-Supporting Means for Mercury Cells

Waddington, J., and Clegg, R. S., 2,680,141, Method of Readjusting the Metal Supporting Rods of Continuous Self-Baking Electrodes

Graybeal, J. O., 2,680,142, Electric Furnace with Horizontally Rotating Consumable Electrode and Method and Means for Replenishing the Same

Clegg, R. S., and Macpherson, P. C., 2,680,143, Method of Supplying Current to Continuous Electrodes

Wilkins, R. A., and Poland, F. F., 2,680,144, Electric Furnace

Carton, J., 2,680,224, Standard Sources of Electromotive Force

June 8, 1954

Dorfan, M. I., 2,680,493, Apparatus for Removing Fume from Electric Furnace Gases

Armant, D. L., and Sigurdson, H. S., 2,680,681, Preparation of Titanium Slag Composition

Kenmore, H., and Manson, W. J., 2,680,710, Method and Apparatus for Continuously Electroplating Heavy Wire and Similar Strip Material

Norwitz, G., 2,680,711, Deposition of Copper by Immersion

Diggin, M. B., and Kardos, O., 2,680,712, Alkaline Zinc Plating Baths

Lindsey, R. V., Jr., and Peterson, M. L., 2,680,713, Process for Preparing Diesters of Unsaturated Alpha, Omega-Dicarboxylic Acids by Electrolysis

Jaffe, H., 2,680,720, Piezoelectric Crystal Body Comprised of Rubidium Compound

Kistler, S. S., 2,680,771, High-Temperature Resistor for Electric Furnaces

Skinner, R. E., and McIntyre, G. H., 2,680,772, Method for Producing Porcelain Enamel

Rappuhn, A. A., Sr., 2,680,773, Battery Cell Automatic Reservoir and Indicator

June 15, 1954

Nossen, E. S., 2,681,268, Process for the Manufacture of Manganese Dioxide and Depolarizers for Electric Cells

Lubatti, E., 2,681,275, Process for Producing Steel from Ferrous Ores Directly

Kline, B. L., 2,681,309, Electrosensitive Recording Blank

Wood, W. H., 2,681,310, Treating Aluminum Surfaces

De Wit, H. P., 2,681,311, Electric Treater

Vogt, H., 2,681,375, Electrode for Electric Batteries and a Process for Producing the Same

Denison, I. A., and Howard, P. L., 2,681,376, Alkaline Primary Battery and Electrolyte Therefor

Smithers, V. L., 2,681,377, Battery Separator

June 22, 1954

Becker, H. I., 2,681,571, Electrical Moisture Indicator

Hushley, W. J., 2,681,861, Glass for Embedding Zinc Sulfide Phosphors

Butler, C. A., Jr., 2,681,884, Brine Electrolysis

Briggs, R. E., 2,681,885, Electrolytic Method for Treating Water

Teal, G. K., 2,681,886, Preparation of Two-Sided Mosaic Screen

Butler, C. A., Jr., 2,681,887, Electrolytic Cell

McCraw, W. S., 2,681,888, Emulsion Treating Apparatus

Hartwick, E. F., 2,681,943, Furnace for Treating Material with Corrosive Gas

Comstock, G. E., III, 2,681,944, Electrical Resistance

Friedman, M., 2,681,945, Alkaline Storage Battery

June 29, 1954

Whitfield, M. G., and Sheshunoff, V., 2,682,101, Oxidation Protected Tungsten and Molybdenum Bodies and Method of Producing Same

Johnson, R. E., 2,682,479, Photosurface of a Panchromatic Type and Method of Preparing Same

Tanner, L. S., 2,682,500, Process of Preparing Pressure Molds and Dies

Teal, G. K., 2,682,501, Preparation of Two-Sided Mosaic

Hesch, F. H., 2,682,502, Method and Material for Electrolytically Brightening Aluminum Surfaces

Hesch, F. H., 2,682,503, Method and Material for Electrolytically Brightening Aluminum Surfaces

Harrison, G. C., and Thompson, J. M., 2,682,504, Preparation of Monochloropropionic Acid

Greco, G., 2,682,505, Electrode Assembly for Bipolar Electrolyzers

Cronin, L. J., 2,682,511, Thermionic Cathodes

Wahlberg, N. R., 2,682,566, Radiation Melting Furnace

Porter, H. H., 2,682,567, Breaker Mechanism for Frangible Ampule in Deferred Action Battery

Stofen, K. A., 2,682,568, Battery Cap

Duncan, O. G., 2,682,569, Vent Plug for Storage Batteries

Thomas, O. H., 2,682,651, Battery Terminal Connector

LITERATURE FROM INDUSTRY

"Hot-Metal Magic." Illustrated booklet gives a glimpse of some of the romance and excitement of the alloy-making industry, and tells about everyday miracles that alloys are performing for us. Among the articles featured are: "From Mines the World Over," "A Hearty Appetite for Power," "Making Metals Behave," "Men in Search of Magic Metals." Included is a Condensed List of ELECTROMET Alloys and Their Uses. Electro Metallurgical Co., A Division of Union Carbide and Carbon Corp. P-232

Alternating Current Test Set. Engineers in research and development laboratories often find themselves in need of measuring equipment capable of giving the complete picture of 60-cycle

MANUSCRIPTS AND ABSTRACTS FOR SPRING MEETING

Manuscripts are now being received for the Spring Meeting of the Society, to be held at the Sheraton-Gibson Hotel in Cincinnati, May 1, 2, 3, 4, and 5, 1955. Subjects to be covered at the technical sessions probably will be Electric Insulation, Electronics, Electro-Organic Chemistry, Electrothermics and Metallurgy, Industrial Electrolytics, and Theoretical Electrochemistry.

To be considered for this meeting, triplicate copies of manuscripts or abstracts (not to exceed 75 words in length) must be received at Society headquarters, 216 West 102nd Street, New York 25, N. Y., *not later than January 15, 1955.*

voltages, currents, power and power factor. The Sensitive Research Universal "60" Alternating Current Test Set supplies this need with a compact, rugged, and accurate set of instruments which are designed to be used together. There are 4 separate instruments in this test set with their necessary switches which create: 36 ranges in watts, 7 current ranges, 4 ranges in volts. All the instrument ranges are completely switch controlled. New 4-page bulletin available upon request. Sensitive Research Instrument Corp. P-233

PROCESS TIMER. 8-page, 2-color bulletin describes in detail the operation, advantages, and applications of the company's new type TSA-18 process timer. Included also are connection diagrams for typical applications, as well as installation and "cut-away" illustrations, prices, specifications, and dimensions. General Electric Co. P-234

"FACTS ABOUT ZIRCONIUM." Recently published booklet is a concise compilation of information about the history and production of zirconium. The mechanical and physical properties, chemical properties, facts about fabrication of zirconium, such as melting, forging, rolling, welding, machinability, are discussed. One chapter treats of zirconium chemicals. Appendix lists data on crystallographic features, atomic and nuclear properties, etc. The Carborundum Co. P-235

CLEANING ABRASIVE. A new bulletin has been published describing Wheelabrator Steel Shot, a cast steel, heat treated, blast cleaning and peening abrasive. Of particular interest is the discussion of the automatic process and quality control exercised in the company's new manufacturing plant. Other sections include a tabular comparison of the characteristics of the various types of metallic abrasives. Performance data are presented from various industries in which this abrasive is used. American Wheelabrator & Equipment Corp. P-236

"WHAT'S NEW FOR THE LABORATORY." 16-page booklet, 21st in the series, has recently been announced. Among the many new items featured are two new balances; a glassware washing machine designed especially for laboratory use; six new Powerstats; *p*H meter; device for safeguarding the purity of distilled water in storage tanks; polyethylene ware; pneumatic acid pump; micro heating tape; low temperature cabinet. Scientific Glass Apparatus Co. Inc. P-237

ACRYLONITRILE. Comprehensive chart showing chemical methods for converting acrylonitrile into more than 100 derivatives is available. The 44-in.-by-35-in. wall chart presents in sequential form the methods for the synthesis of acrylonitrile compounds according to 3 general classifications: cyanoethylation reactions, nitrile reactions, and olefinic reactions. In addition, it contains a literature summary of potential uses for 16 of the more important derivatives. Monsanto Chemical Co. P-238

NEW REFRACTORIES. "Norton Refractories for the Ceramic Industry" is the title of a new 28-page informational booklet prepared as a helpful guide for the selection of the most suitable refractory materials for specific applications. In addition to describing the available refractory products, it contains engineering tables and other data useful in connection with the employment of refractories in the ceramic industry. Norton Co. P-239

NEW PRODUCTS

HERMETICALLY-SEALED COILS. New series of hermetically-sealed coils for electronic and electrical applications is now being produced. The coils are offered in a wide range of electrical and mechanical characteristics. Features include: hermetic sealing, true glass-to-metal sealing technique, insulated metal case, specifications exceeding the most rigid requirements. Fugle-Miller Labs. N-103

NONETCHING ALUMINUM CLEANER. New detergent, "Aluminum Cleaner NE-6," for rapid cleaning of aluminum is stated to be mild in alkalinity, does not etch metals either at the air interface or in contact with other metals, and possesses very high detergency. Claimed to have remarkable ability to disperse oils and to remove marking ink and crayon normally present on aluminum sheet. Recommended for cleaning cast and wrought aluminum prior to anodizing, chromate treatments, organic finishing, resistance welding, and plating by the nonetching process. Enthone, Inc. N-104

Cue on New

PQ Soluble Silicates

METSO ANHYDROUS—technically pure anhydrous sodium metasilicate (U.S. Pat. 2,239,880). Over 50% sodium oxide is combined with soluble silica. Metso Anhydrous quickly penetrates dirt films, disperses solid dirt, emulsifies or saponifies animal, vegetable or mineral oils. Used for heavy-duty cleaning in metal industries, laundries, for clay washing and ore treatment.

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ALPHA SCINTILLATION COUNTER. A light-tight scintillation counter that counts alpha particles, but not other radiations, has been announced. Contains a closely packed monolayer of alpha sensitive phosphor, covered by an aluminum foil. This is transparent to alpha particles, but not to light. Detector is hermetically sealed against an ultraviolet transmitting glass window to form a light-tight assembly interchangeable with other counters for beta rays, gamma rays, and neutrons. National Radiac, Inc. N-105

VISCOSITY MEASURING INSTRUMENT. New instrument, called the Bendix Ultra-Viscoson, utilizing ultrasonic principles, is offered in a complete line of indicating, recording, and control systems which feature a new approach to process control through viscosity. The versatility of these systems is emphasized by the fact that they are being employed successfully to control fuel oil blending, fractionation of lubricating oils, asphalt oxidation and asphalt cutback in petroleum refineries, and fuel atomization in conjunction with open hearth furnaces in the steel industry. Bendix Aviation Corp. N-106

RECORDING SPECTROMETER. L & N Recording Spectrometer is specifically designed for multiplier phototube detection and measurement of the spectrum, including both near ultraviolet and visable spectra. High resolution permits spectrum analysis of gas discharge tubes, isotope-ratio determination such as hydrogen-deuterium respiratory gas analysis, etc. Equipment consists of two assemblies: the grating monochromator arranged for table-top mounting and a mobile recording and electronic cubicle. Leeds & Northrup Co. N-107

"DEKATRON COUNTING TUBE. Cold cathode counting tube with a maximum input frequency of 20,000 counts per second is now available for use in fast registers and counters. Has a scale of 10. May be mounted in any position; however, the count is read from the top of the tube. Features are: high counting speed, silent operation, simplicity, long life, low current drain. Manufactured in Great Britain by Ericcson Telephones Ltd. and available exclusively in the United States and Canada from Atomic Instrument Co. N-108

DETREX METAL CLEANER. New type of prephosphating metal cleaner to be used in mechanical spray processing equipment, which is relatively neutral and contains no metallic activator, is available. Specifically designed for use in spray phosphate coating units where a fine-grained phosphate crystal is required. Leaves the metal surface chemically clean and requires no surface seeding in the prephosphate coating stages. Prevents excessive foaming at elevated temperatures and pressures. Detrex Corp. N-109

MAGNETIC SERVO AMPLIFIER. Type R6G10W1 magnetic amplifier is ideally suited, without need of a pre-amplifier, for many medium performance indicating or position type servomechanisms. Through addition of a simple pre-amplifier, it may be employed in the most accurate and demanding type of control systems. One cycle response assures the widest possible bandwidth consistent with the use of 60 cps as the power supply frequency, thus reducing many of the stabilization problems formerly encountered. Polytechnic Research & Development Co., Inc. N-110

FLUCTUATING-PRESSURE TRANSDUCER. Redesigned Sierra Brand Transducers provide a resistance change which is a true representation of pressure fluctuations—eliminating phase and amplitude errors which can arise in systems involving pneumatic tubing connections or transducer volumes. Other features are freedom from shock and acceleration effects, structural simplicity, and ease of calibration. Electronic Engineering Associates, Ltd. N-111

SPIRALLY STRIPED TEFLON WIRE. Production quantities of spirally striped Tensolon high temperature Teflon insulated hook-up wires are now being offered. These new wires for color coding and circuit identification are the first Teflon wires to be produced with spiral striping that conforms to commercial and military specifications for color coding. The colored stripes are made with high temperature tetrafluoroethylene inks fused into the surface of the insulation. Tensolite Insulated Wire Co., Inc. N-112

BATCH TYPE OVENS. Announcement has been made of a line of batch type ovens said to be of the heavy duty, convection type and especially designed to fill the needs of precision laboratory testing and small parts production. Will be available either electric or gas-fired. Features are: Inconel-sheathed "Life-Time" heating elements, high-low heat switch for close control and quick recovery, adjustable air volume, adjustable positive exhaust and intake, sturdy construction, and easy accessibility of all parts. Burdett Manufacturing Co. N-113

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Dow Chemical Company 213
Enthone, Incorporated . . . . . Cover
Baker & Adamson Products, General Chemical Division, Allied Chemical & Dye Corporation 211
Great Lakes Carbon Corporation . . . . . Cover
Philadelphia Quartz Company 237
Sanborn Company 212
E. H. Sargent & Company . . 210
Stackpole Carbon Company . . 214

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